To: Miller, Johanna[Miller.Johanna@epa.gov]
From: Ketellapper, Victor[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=DC60D6FD9A99422D902FC8AE9980C4C6-KETELLAPPER, VICTOR]
Sent: Wed 9/28/2016 9:23:18 PM (UTC)
Subject: RE: FYI - SD Rad Waste and Cheyenne River

Yes, I will also send it to Douglas Minter and Valois Shea.

Victor

From: Miller, Johanna
Sent: Wednesday, September 28, 2016 3:21 PM
To: Ketellapper, Victor <Ketellapper.Victor@epa.gov>
Subject: Fwd: FYI - SD Rad Waste and Cheyenne River

Can you pass along the hot topic to Aaron and Andrea as an FYI. Thanks Johanna

Sent from my iPhone
Begin forwarded message:

> **From:** "Urdiales, Aaron" <Urdiales.Aaron@epa.gov>
> **Date:** September 28, 2016 at 1:35:50 PM PDT
> **To:** "Wharton, Steve" <Wharton.Steve@epa.gov>
> **Cc:** "Miller, Johanna" <Miller.Johanna@epa.gov>
> **Subject: Fwd: FYI - SD Rad Waste and Cheyenne River**
>
> Please see below,
>
> Aaron
>
> Sent from my iPhone
> Begin forwarded message:
>
> > **From:** "Madigan, Andrea" <Madigan.Andrea@epa.gov>
> > **Date:** September 21, 2016 at 11:22:43 AM MDT
> > **To:** "Kulpan, Bruce" <Kulpan.Bruce@epa.gov>
> > **Cc:** "Huynh-Linenberg, Jacquie" <huynh-linenberg.jacquie@epa.gov>, "Ergener, Deniz" <Ergener.Deniz@epa.gov>, "Dixon, Douglas" <Dixon.Douglas@epa.gov>, "Urdiales, Aaron" <Urdiales.Aaron@epa.gov>, "Mackey, Cyndy" <Mackey.Cyndy@epa.gov>, "Patterson, Kenneth" <Patterson.Kenneth@epa.gov>
> > **Subject: RE: FYI - SD Rad Waste and Cheyenne River**
> >
> > The remedial program has been conducting a risk assessment for some time and has not determined what actions if any it will pursue. The river is not on the NPL and no removal actions have been taken. I am not aware of any current PRP search work.
> >
> > Andrea Madigan
> > CERCLA Supervisory Attorney
> > US EPA Region 8
> > Legal Enforcement Program
> > 1595 Wynkoop Street
> > Denver, Colorado 80202
> > (303) 312-6904
> >
> > ---
> >
> > **From:** Kulpan, Bruce
> > **Sent:** Wednesday, September 21, 2016 9:32 AM
> > **To:** Madigan, Andrea <Madigan.Andrea@epa.gov>
> > **Cc:** Huynh-Linenberg, Jacquie <huynh-linenberg.jacquie@epa.gov>; Ergener, Deniz

<Ergener.Deniz@epa.gov>; Dixon, Douglas <Dixon.Douglas@epa.gov>; Urdiales, Aaron <Urdiales.Aaron@epa.gov>; Mackey, Cyndy <Mackey.Cyndy@epa.gov>; Patterson, Kenneth <Patterson.Kenneth@epa.gov>
Subject: FYI - SD Rad Waste and Cheyenne River

Andrea,

FYI – I came across this article and was wondering if R8 was conducting a PRP search to see if there were liable/viable parties to conduct a cleanup or gaining access to assess risk based on levels of contamination?

Bruce

Stream sediment geochemistry of the upper Cheyenne River watershed within the abandoned uranium mining region of the southern Black Hills, South Dakota, USA

Abstract

Abandoned uranium (U) mine workings and tailings deposits are found throughout the southern Black Hills of South Dakota. The close proximity of the mine sites to the Cheyenne River (CR) appears to promote elevated metal and radionuclide transport within the watershed, however, the extent of their contribution is unknown. Sixty sediment and soil samples were collected from potentially impacted locations within the watershed to elucidate contaminant occurrence and transport mechanisms. The degree of sediment contaminant impacts were assessed by establishing enrichment factors (EF) and pollution load indices (PLI) criterion as compared to non-mining impacted reference sites. Herron classifications suggest that the sediments collected from the southern Black Hills are immature, consistent with the presence of detrital feldspar. Generally, sediment Sr content were found depleted and intermittently enriched in Rb/Sr ratios compared to upper continental crust concentrations, suggesting physical weathering mechanisms predominate within the CR catchment up gradient of the Angostura Reservoir. Increasing EF and PLI indices coupled with low strontium (Sr) values suggest sediment contamination found along the CR and Angostura Reservoir delta appear attributed to anthropogenic activities and not natural weathering processes.

CHEYENNE RIVER STUDY SHOWS ELEVATED URANIUM IN ANGOSTURA RESERVOIR

Contact:
Lilias Jarding, Ph.D. 605-787-2872 (Clean Water Alliance)

Recent research by two South Dakota School of Mines and Technology scientists and a scientist from California State University-Fresno confirmed what we have long suspected – that elevated uranium levels are present in Angostura Reservoir in the southern Black Hills. The study tested stream sediments along the Cheyenne River watershed from old abandoned uranium mines

to Angostura Reservoir.

According to the study, the elevated uranium levels at Angostura are partly caused by human activity, which would include the abandoned uranium mines and the former mill at Edgemont. Elevated uranium levels at Angostura Reservoir are comparable to the elevated uranium levels upstream at the abandoned mines. It is approximately 34 miles from the old mines to the Reservoir.

"This impacts people throughout western South Dakota," according to Gena Parkhurst, President of the Black Hills Chapter of Dakota Rural Action. "The Cheyenne River runs along or through two reservations and five counties. It impacts agriculture and tourism. We need to clean it up."

According to the U.S. Environmental Protection Agency (EPA), there are 169 old uranium mines and prospects in the southern Black Hills, which was mined from 1951 to 1972. Only a handful of the old mines have been cleaned up. There was also a dam break in Edgemont that released 200 tons of radioactive uranium mill wastes into the Cheyenne River in 1962. According to the U.S. Nuclear Regulatory Commission, some of these wastes reached Angostura Reservoir. The Bureau of Reclamation manages the reservoir, which is a popular recreation spot for local residents and tourists.

Sarah Peterson of It's All About the Water, a grassroots group based in the southern Black Hills, says, "With these new, verifiable tests, it is time the Environmental Protection Agency immediately reopens the application for a Superfund clean-up at the old mines in the Dewey-Burdock area" of Fall River and Custer Counties. **The EPA looked into doing clean-up at the old uranium mines, but dropped the idea after being blocked from measuring the level of pollution on lands controlled by a uranium company in 2015.**

Dr. Lilias Jarding of Clean Water Alliance also calls for clean-up: "These radioactive mines have been sitting open for as much as 65 years," Jarding said. "These test results make it clear there is a problem that threatens public health and demands immediate action. These old mines should be cleaned up before any new uranium mining is allowed in the area. We call on the state Department of Environment and Natural Resources and the Bureau of Reclamation to clean up these radioactive mines, starting today."

The citation for the study is:

> Sharma, R. K., Putirka, K. D., & Stone, J. J. (2016). Stream sediment geochemistry of the upper Cheyenne River watershed within the abandoned uranium mining region of the southern Black Hills, South Dakota, USA. *Environmental Earth Sciences 75*: 823. doi: 10.1007/s12665-016-5522-8.

The **co-sponsors** of this Press Release are:

Clean Water Alliance *is a diverse collection of citizens concerned about the health, environmental, and economic impacts that proposed uranium mining projects would have on our communities, people, economy, and natural resources.* www.bhcleanwateralliance.org

Dakota Rural Action *is a grassroots family agriculture and conservation group that organizes South Dakotans to protect our family farmers and ranchers, natural resources, and unique way of life.* www.dakotarural.org

It's All About the Water *is a grassroots movement based in the southern Black Hills.*